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FULL ESTIMATED COST	ENTRY	SESSION
	22.56	144.85
DISCOUNT AMOUNTS (FOR QUALIFYING ACCOUNTS)	SINCE FILE	TOTAL
CA SUBSCRIBER PRICE	ENTRY	SESSION
	-1.24	-1.24

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STRUCTURE FILE UPDATES: 14 AUG 2002 HIGHEST RN 443957-06-0
 DICTIONARY FILE UPDATES: 14 AUG 2002 HIGHEST RN 443957-06-0

TSCA INFORMATION NOW CURRENT THROUGH MAY 20, 2002

Please note that search-term pricing does apply when
 conducting SmartSELECT searches.

Crossover limits have been increased. See HELP CROSSOVER for details.

Calculated physical property data is now available. See HELP PROPERTIES
 for more information. See STNote 27, Searching Properties in the CAS
 Registry File, for complete details:
<http://www.cas.org/ONLINE/STN/STNOTES/stnotes27.pdf>

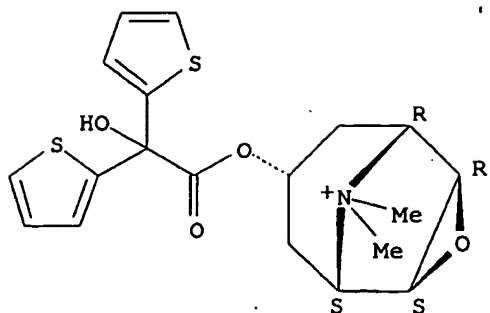
=> s 411207-31-3
 L9 1 411207-31-3
 (411207-31-3/RN)

=> s 411207-31-3/rn
 L10 1 411207-31-3/RN

=> d 110

L10 ANSWER 1 OF 1 REGISTRY COPYRIGHT 2002 ACS
 RN 411207-31-3 REGISTRY
 CN 3-Oxa-9-azoniatricyclo[3.3.1.0^{2,4}]nonane, 7-[(hydroxydi-2-
 thienylacetyl)oxy]-9,9-dimethyl-, bromide, monohydrate,
 (1.alpha.,2.beta.,4.beta.,5.alpha.,7.beta.)- (9CI) (CA INDEX NAME)
 OTHER NAMES:
 CN Tiotropium bromide monohydrate
 FS STEREOSEARCH
 MF C19 H22 N O4 S2 . Br . H2 O
 SR CA
 LC STN Files: CA, CAPLUS
 CRN (186691-13-4)

Relative stereochemistry.



● Br⁻

● H₂O

6 REFERENCES IN FILE CA (1967 TO DATE)
6 REFERENCES IN FILE CAPLUS (1967 TO DATE)

=> E BANHOLZER ROLF/AU 25

E1 1 BANHOLZER PETER/AU
E2 3 BANHOLZER R/AU
E3 41 --> BANHOLZER ROLF/AU
E4 1 BANHOLZER RUDOLF/AU
E5 1 BANHOLZER THOMAS/AU
E6 1 BANHOLZER VIVIEN/AU
E7 9 BANHOLZER W/AU
E8 39 BANHOLZER W F/AU
E9 1 BANHOLZER WALTER/AU
E10 6 BANHOLZER WILLIAM/AU
E11 13 BANHOLZER WILLIAM F/AU
E12 15 BANHOLZER WILLIAM FRANK/AU
E13 1 BANHZOFF ANGELIKA/AU
E14 1 BANI A/AU
E15 1 BANI AKOTO E/AU
E16 5 BANI AKOTO ERNEST/AU
E17 1 BANI ANTONIO/AU
E18 1 BANI ASSADI SHADI/AU
E19 19 BANI D/AU
E20 31 BANI DANIELE/AU
E21 1 BANI E/AU
E22 1 BANI FWAZ MUTASEM Z/AU
E23 10 BANI G/AU
E24 10 BANI GASTONE/AU
E25 1 BANI HANI AHMAD/AU

=> S (E2 OR E3) AND (TIOTROPIUM)

3 "BANHOLZER R"/AU

41 "BANHOLZER ROLF"/AU

112 TIOTROPIUM

L1 2 ("BANHOLZER R"/AU OR "BANHOLZER ROLF"/AU) AND (TIOTROPIUM)

=> DIS L1 1- IBIB ABS

YOU HAVE REQUESTED DATA FROM 2 ANSWERS - CONTINUE? Y/(N):Y

L1 ANSWER 1 OF 2 CAPLUS COPYRIGHT 2003 ACS on STN

ACCESSION NUMBER: 2002:484684 CAPLUS

DOCUMENT NUMBER: 137:47348

TITLE: Procedure for the production of the anticholinergic
tiotropium bromide from tropenol

INVENTOR(S): Banholzer, Rolf; Graulich, Manfred; Luettke,
Sven; Mathes, Andreas; Meissner, Helmut; Specht,
Peter; Broeder, Wolfgang

PATENT ASSIGNEE(S): Boehringer Ingelheim Pharma K.-G., Germany

SOURCE: Ger. Offen., 12 pp.

CODEN: GWXXBX

DOCUMENT TYPE: Patent

LANGUAGE: German

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
DE 10064816	A1	20020627	DE 2000-10064816	20001222
WO 2002051840	A1	20020704	WO 2001-EP14566	20011212

W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN,
CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH,
GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KZ, LC, LK, LR,
LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, OM, PH,
PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TN, TR, TT, TZ,

UA, UG, US, UZ, VN, YU, ZA, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM
 RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW, AT, BE, CH,
 CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, TR,
 BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG

US 2002133010 A1 20020919 US 2001-25425 20011219

US 6486321 B2 20021126

US 6506900 B1 20030114

US 2002-223152 20020819

PRIORITY APPLN. INFO.:

DE 2000-10064816 A 20001222

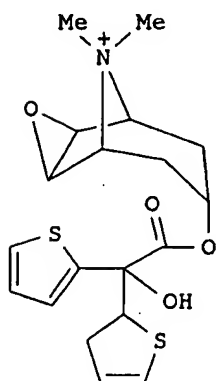
US 2001-265443P P 20010131

US 2001-25425 A1 20011219

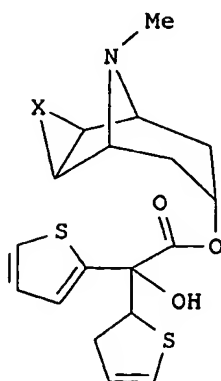
OTHER SOURCE(S):

CASREACT 137:47348; MARPAT 137:47348

GI



I



II

AB The invention concerns a new procedure for the prodn. of
 (1.alpha.,2.beta.,4.beta.,5.alpha.,7.beta.)-7-[(hydroxydi-2-
 thienylacetyl)oxy]-9,9-dimethyl-3-oxa-9-azoniatricyclo[3.3.1.0^{2,4}]nonane
 bromide (I.cntdot.Br-) is characterized by the oxidn. of tropenol ester II
 (X = bond) to scopine ester II (X = O) and then quaternization with MeBr
 to I.Br-.

L1 ANSWER 2 OF 2 CAPLUS COPYRIGHT 2003 ACS on STN

ACCESSION NUMBER: 2002:293650 CAPLUS

DOCUMENT NUMBER: 136:314978

TITLE: Crystalline tiotropium bromide monohydrate,
 method for producing the usage as inhalant powder

INVENTOR(S): Banholzer, Rolf; Sieger, Peter; Kulinna,
 Christian; Trunk, Michael; Graulich, Manfred Ludwig
 August; Specht, Peter; Meissner, Helmut; Mathes,
 Andreas

PATENT ASSIGNEE(S): Boehringer Ingelheim Pharma K.-G., Germany

SOURCE: PCT Int. Appl., 22 pp.

CODEN: PIXXD2

DOCUMENT TYPE: Patent

LANGUAGE: German

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2002030928	A1	20020418	WO 2001-EP11225	20010928
W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH,				

GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR,
 LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, PH, PL,
 PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG,
 US, UZ, VN, YU, ZA, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM
 RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZW, AT, BE, CH, CY,
 DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, TR, BF,
 BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG

US 2002169321 A1 20021114 US 2001-961822 20010924
 AU 2002014996 A5 20020422 AU 2002-14996 20010928
 EE 200300171 A 20030616 EE 2003-171 20010928
 EP 1326862 A1 20030716 EP 2001-983510 20010928

R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT,
 IE, SI, LT, LV, FI, RO, MK, CY, AL, TR

NO 2003001694 A 20030411 NO 2003-1694 20030411
 PRIORITY APPLN. INFO.: DE 2000-10050621 A 20001012
 US 2000-249349P P 20001116
 WO 2001-EP11225 W 20010928

AB The invention relates to a cryst. monohydrate of
 (1.alpha.,2.beta.,4.beta.,5.alpha.,7.beta.)-7-[(hydroxydi-2-
 thienylacetyl)oxy]-9,9-dimethyl-3-oxa-9-azo niatricyclo[3.3.1.0^{2,4}]nonane
 bromide, (tiotropium bromide monohydrate), to a method for its
 prodn., and to its use as inhaling powder with anticholinergic effect.
 The process involves dissolving tiotropium bromide in water at a
 temp. > 50.degree.C; clarifying with active carbon; filtration; cooling
 and crystn. IR data and parameters of the monocline crystal are
 presented. Tiotropium bromide monohydrate is produced for the
 incorporation in inhaling powders to treat asthma and COPD.

REFERENCE COUNT: 3 THERE ARE 3 CITED REFERENCES AVAILABLE FOR THIS
 RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT